

## Energy Use in Hotels

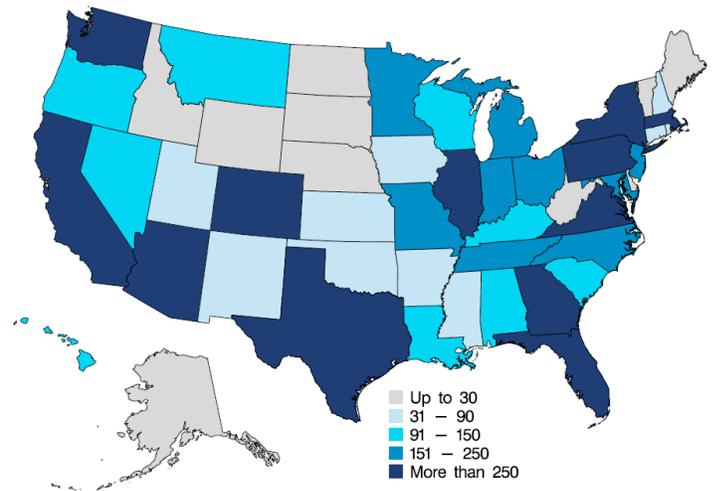
### Hotels Using Portfolio Manager

-  10,412 Properties
-  1.9 Billion ft<sup>2</sup>
-  Average ENERGY STAR Score: 50

The U.S. Environmental Protection Agency's (EPA) ENERGY STAR Portfolio Manager is changing the way organizations track and manage energy. Because of this widespread market adoption, EPA has prepared the DataTrends series to examine benchmarking and trends in energy and water consumption in Portfolio Manager. To learn more, visit [www.energystar.gov/DataTrends](http://www.energystar.gov/DataTrends).

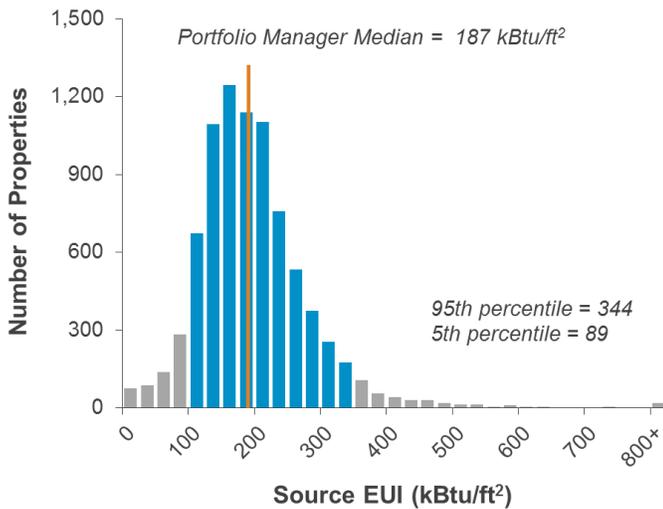
### Benchmarking by State

Number of Hotels



### What is a typical operating profile?

Energy use intensity (EUI) ranges from less than 100 to more than 800 kBtu/ft<sup>2</sup> across all hotels, with those at the 95th percentile using almost 4 times the energy of those at the 5th percentile. The distribution has a negative skew, which means the most energy intensive properties are further away from the median than the most efficient. Properties may use more or less energy for many reasons, including variable equipment efficiency and energy management practices, as well as variations in climate and business activities.



The median hotel in Portfolio Manager is 78,000 square feet and has about 1.8 rooms per thousand square feet. But the typical property use patterns observed in Portfolio Manager vary just as much as energy. As you can see, there are hotels of all shapes and sizes benchmarking in Portfolio Manager.

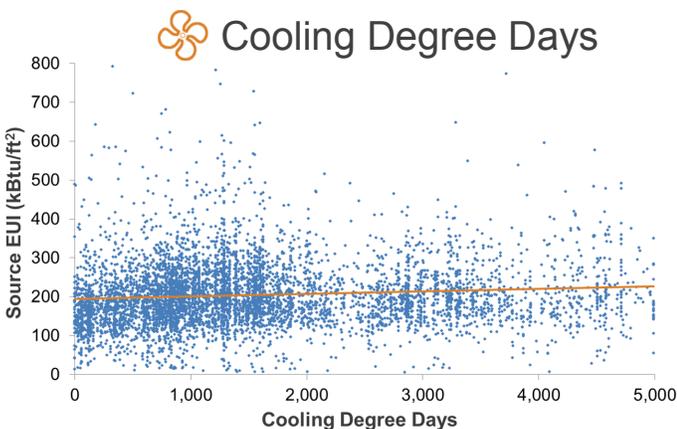
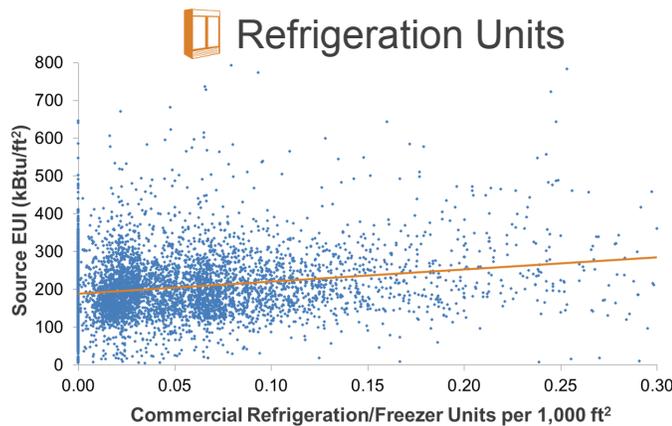
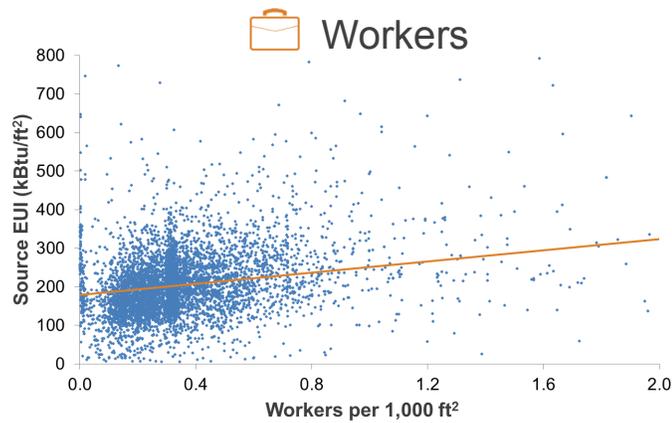


Property Characteristic	5th percentile	Median	95th percentile
 Square Feet	21,289	78,000	617,226
 Workers per 1,000 ft <sup>2</sup>	0.1	0.3	0.7
 Commercial Refrigeration Units per 1,000 ft <sup>2</sup>	0.00	0.02	0.15
 Cooking Facilities?	52% say yes		
 Rooms per 1,000 ft <sup>2</sup>	0.8	1.8	3.7
 Heating Degree Days	421	3,701	7,230
 Cooling Degree Days	124	1,262	4,257

**What is Source Energy?** Source energy is the amount of raw fuel required to operate your property. In addition to what you use on site, source energy includes losses from generation, transmission, and distribution of energy. Source energy enables the most complete and equitable energy assessment. Learn more at: [www.energystar.gov/SourceEnergy](http://www.energystar.gov/SourceEnergy).

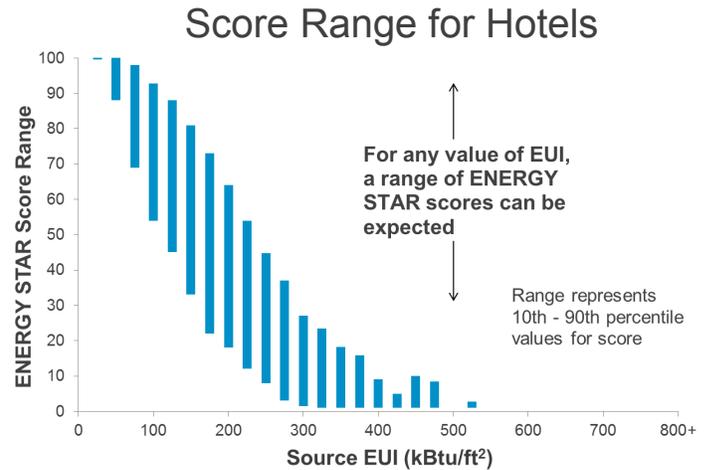
## What characteristics affect energy use in hotels?

Business activity and climate are often correlated with energy consumption. For example, hotels that have more workers per square foot (related to amenity levels), more commercial refrigeration units per square foot (related to restaurant activity) and/or experience more cooling degree days (CDD) use more energy, on average. The orange trend lines in the graphs below show the impact of each characteristic on energy use. The steeper the line, the bigger the impact. While these trends hold true on average, the blue dots demonstrate that for any given value of workers, refrigeration units, and CDD, a broad range in energy use is observed. Similar trends can be seen for other indicators of business activity, such as number of rooms.

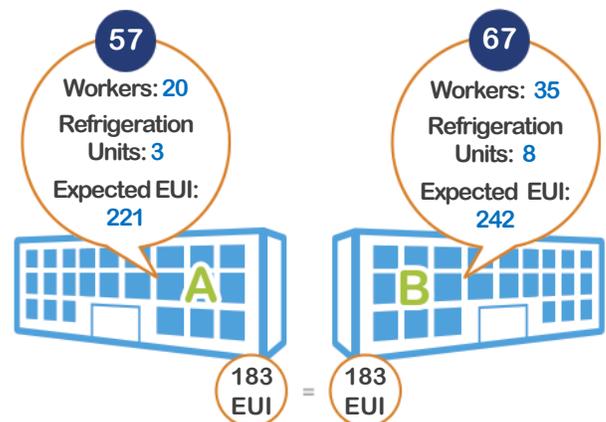


## How does EPA's ENERGY STAR score vary with energy use?

EPA's ENERGY STAR score normalizes for the effects of operation. While properties with lower EUI generally earn higher scores on the 1-100 scale, an individual property's result depends on its business activities. For any given EUI, a range of scores is possible.



Let's look at two hotels, Hotel A and Hotel B. They have the same EUI of 183 kBtu per square foot, and are identical except that Hotel B has more workers per square foot and more commercial refrigeration units per square foot. Because Hotel B has more intensive activities, it is expected to have a higher EUI than Hotel A, based on ENERGY STAR scoring models. Since Hotel B is *expected* to use more energy, but *actually* uses the same energy, it earns a higher score.



**Note:** Total number and floor area of properties benchmarked reflects cumulative data through 2013. Analysis of energy use and operational characteristics includes 8,326 properties benchmarked in the most recent 5 years. The data is self reported and has been filtered to exclude outliers, incomplete records, and test facilities. Portfolio Manager is not a randomly selected sample and is not the basis of the ENERGY STAR score. To learn more, visit: [www.energystar.gov/DataTrends](http://www.energystar.gov/DataTrends).